Botany report for
Feather Falls Salvage Project
(Short form Biological Evaluation/ Biological Assessment/ Noxious Weed Risk Assessment)

By Emily Doe, District Botanist
Feather River Ranger District
5/14/2021

My assessments, below, are based on Feather River RD GIS layers and other available records for survey areas, occurrences of species of conservation concern (rare plants: USFWS Threatened or Endangered, FS Sensitive, and PNF Watch List), and infestations of non-native invasive plants (NNIP).

PROJECT DETERMINATION SUMMARY

Survey summary: COMPLETE.

Species of conservation concern (rare plants) summary:

- *There are no concerns for species of conservation concern with implementation of the Management Requirements during project implementation (see Appendix A).*

Non-native invasive plants (NNIP) summary:

- *Concerns about NNIP in the project area are being addressed as part of project design with an integrated pest management program that meets the purpose and need for the project (see Appendix A).*

PROJECT DESCRIPTION

PROPOSED PROJECT NAME AND LOCATION. Feather Falls Salvage Project. Approximately 209 acres of Salvage activities, near Feather Falls National Scenic Area approximately 28 road-miles from Oroville, Butte County, California. Another approx. 41 acres located off of Lumpkin Road (Forest Service Road 22N27) about 3 air miles northeast of the town of Feather Falls.

PROPOSED PROJECT ACTION AND DESCRIPTION. *Salvage logging to remove fuels hazards, site prep for reforestation, and recover economic value* around recreation facilities outside IRA. This project proposes to treat no more than 250 acres using conventional or mechanical tractor logging practices.

- Salvage Cut removing trees which are dead or dying because of injurious agents (fire killed trees), to recover economic value that would otherwise be lost. Salvage will be conducted following designation by damage class. Follow marking guidelines for fire-injured trees in California (Smith and Cluck 2011). No green tree element. No sawlog diameter limits for salvage cut. SNFPA guidelines for snag retention apply;
- Mastication; any crushing, mowing, mulching, or other treatment that grinds or shreds vegetation (e.g. brush, fire killed trees) leaving resulting material on the forest floor, to enhance the success of natural regeneration or regeneration on sites that will be replanted; and
- The project will include maintenance to existing roads.

Reforestation. To accomplish re-establishment of forest cover killed by fire, FRRD proposes to hand-cut-and-pile brush, burn brush piles, plant trees in the ground, masticate brush, prune resprouting oaks, and dig fire-lines by hand.

- Mastication; any crushing, mowing, mulching, or other treatment that grinds or shreds vegetation (e.g. brush, fire killed trees) leaving resulting material on the forest floor, to enhance the success of natural regeneration or regeneration on sites that will be replanted;
- Hand-Cut; felling of trees and shrubs using chainsaws to enhance the success of natural regeneration or regeneration on sites that will be replanted;
- Yarding; removal of activity-generated slash and other fuels from the site by carrying or dragging;
- Piling of Fuels, Hand or Machine; pile all activity generated slash and cover with waterproof covering for burning during winter months;
- Burning of Piled Material; burning of piled material including hand and machine piles during winter months to remove hazardous fuels;
- Plant Trees; the establishment or re-establishment of forest cover artificially by planting seedlings and/or cuttings, with or without site preparation;
- Establish Research Plots; plots installed for research purposes by experiment stations, universities, or similar;
- Prune; the removal, close to the branch collar or flush with stem, of side branches and multiple leaders from oak (or other hardwood) resprouts;
- Tree Release and Weed; treatment designed to free young trees from undesirable, competing vegetation in stands not past sapling stage;
- Dig Fire Lines by Hand; hand-installation of a control line that is scraped or dug to mineral soil;
- Prescribed fire; activity where fire is applied to the majority or all of an area within well-defined boundaries for reduction of fuel hazard, as a resource management treatment, or both to achieve desired conditions; and
- Maintenance hand cutting, hand- and/or grapple-piling, mastication, biomassing, targeted grazing, and prescribed under-burning as needed on multiple entries over the next three years to maintain desired conditions.

Repair and/or replace recreation facilities of the Feather Falls Trailhead and Campground. This project proposes repairing and replacing roads, and minor facilities damaged or destroyed by fire.

- Repairs and improvements to NFS Road 21N35Y (Bryant Ravine Road);
    - Replace large campground and trailhead entrance sign
    - Install new gate
- Repairs to the paved parking lot;
    - Replace barrier – curb
    - Replace security lights
- Replace well water system with submersible pump
- Repair of Feather Falls Trailhead
    - Replace visitor information signs
- Repair of Feather Falls Campground consisting of 5 campsites;
    - Replace post-mounted registration box
    - Replace bear-proof garbage cans
    - Replace native material pathways
    - Replace wood steps to campsites
    - Install Carsonite markers at campsites
    - Replace fire rings

    - Install new concrete pads for picnic tables
    - Replace picnic tables
- Repair day use area; and
- Repair vault toilet building;

Treat broom infestations. To accomplish eradication of broom in the project area the FRRD proposes treatments using mechanical treatments and fire to eradicate masses of young seedlings.

- Mechanical treatment by means of weed whipping and/or mowing.
- Fire treatment using propane torches and/or drip torches.

SURVEYS

This project area was most recently surveyed (2021), intuitive controlled, for plant species of conservation concern (USFWS T&E, FS Sensitive, and PNF Watch List) and non-native invasive plants (NNIP) (surveys #051103_2021_001, #051103_2021_002). In addition, this survey overlaps with several older surveys conducted in 1983, 1991, and 1993.

Survey summary: COMPLETE.

SPECIES OF CONSERVATION CONCERN (RARE PLANTS)

One species of Forest Service Sensitive plants and no species of Plumas NF Watch List plants are known from within the project area (Table 1). Only a small sliver of this occurrence of FS Sensitive species are within the timber cutting units. Table 1 includes notes about the acres of distribution of this species within the project area and Management Requirements to ensure that no significant impacts would result from project implementation. The specific Management Requirements are summarized in Appendix A.

Table 1. Forest Service Sensitive and Plumas NF Watch List plant species found within the project area.

Scientific name	Common name	Manage-ment category[1]	Acres within project	Percent acres protected	Project design features[2]
Fritillaria eastwoodiae	Butte County fritillary	Sensitive	4	100%	Protect in Controlled Areas – no ground disturbance

[1]In general Forest Service Sensitive species have stricter management requirements due to their greater level of rarity and their designation as Sensitive by the Regional Forester (USDA Forest Service 2013), compared to Watch List species which are designated by the Plumas NF Forest Supervisor (USDA Forest Service 2014).

[2]See the Management Requirements summary below for details of these protocols.

- **Butte County fritillary** (*Fritillaria eastwoodiae* – FS Sensitive species).
    - This bulbiferous perennial is known from one large occurrence in the area, totaling about 48 acres. Only about 4 acres of this occurrence is within the salvage timber cutting units.
    - This species is generally only visible from April to May.
    - PNF Management Prescription for this species (USDA Forest Service 2014) says to:

        Protect occurrences from surface disturbance until above ground plant parts are dormant in late summer to fall. Do not disturb bulb. Maintain partial shade conditions. Hand thin and

lop and scatter around known occurrences if fuel treatment prior to burning is needed. Investigate the use of prescribed fire and mastication as a management tool and monitor effects. To the extent possible, avoid ignitions within occurrences and avoid building fire control lines in or near occurrences. Also, allow fire to creep/back into occurrences from adjacent terrain if the fuel loading permits. Evaluate other activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.

- Establish Botany Controlled areas to protect all Butte County fritillary plants within the Timber Sale unit, and as needed if any project activities outside of the timber cutting units but within the Sale Improvement Area are planned.
- MANAGEMENT REQUIREMENTS for Butte County fritillary. All occurrences of Butte County fritillary will be protected within Botany Controlled Areas where needed.
- **FS Sensitive plant species – project activities may impact individuals but are not likely to cause a trend toward federal listing or loss of viability:**
  - Some plants may be inadvertently damaged by planned work, but below ground plant parts (seeds, and to a great extent, bulbs) would survive to reproduce another year.

Species of conservation concern (rare plants) summary:

- *There are no concerns for species of conservation concern with implementation of the Management Requirements that are built into the project design (see Appendix A).*

NON-NATIVE INVASIVE PLANTS (NNIP)

Two species of NNIP are known from within this project area: Scotch broom

- (*Cytisus scoparius*) and French broom (*Genista monspessulana*) – see Table 2. A mix of Scotch broom and French broom has been known for a number of years from along the roads in the area.

Table 2. Acres of each of the 2 species of NNIP within the Feather Falls Salvage project area.

Species	**CDFA category**[1]	**Acres**	**Comments about distribution within project area**
Scotch broom (*Cytisus scoparius*)	C-List	21	Prominent along roads as well as old skids, has spreads by seed away into adjacent areas.
French broom (*Genista monspessulana*)	C-List	19	Prominent along roads as well as old skids, has spreads by seed away into adjacent areas.

[1] The California Department of Food and Agriculture's noxious weed list (CDFA 2021a) divides noxious weeds into categories A, B, and C (CDFA 2021b): A-listed weeds are those for which eradication or containment is required at the state or county level; B-listed weeds are those where eradication or containment is at the discretion of the County Agricultural Commissioner; and C-listed weeds require eradication or containment only when found in a nursery or at the discretion of the County Agricultural Commissioner.

- **French broom (*Genista monspessulana*) and Scotch broom (*Cytisus scoparius*).**
  - A mix of Scotch and French broom is known from along the roads and scattered within the project area, totaling approximately 40 acres. Broom has been known from along both sides of

the road to the trailhead for a number of years. It has been pulled a number of times there over the years, but inconsistently, and due to the longevity of seeds in the soil it has not yet been eradicated from the site. In 2020 the North-Complex Fire burned through this area and killed all mature broom plants. During 2021 surveys carpets of broom seedlings were found in the areas previously mapped as well as much expanded into new areas. Due to the early timing of surveys, these seedlings were mapped but continue to be discovered as they mature and grow large enough to find and ID. Therefor it is expected that the known extent of these infestations will grow before implementation.

- French broom is a perennial shrub in the pea family. It generally grows in sunny sites with dry sandy soil, and can spread rapidly through pastures, borders of forests, and roadsides. French broom can be found from the California coast to the foothills of the Sierra Nevada and the Cascade Range. This weed crowds out native species, has a seed-bank that can remain dormant for up to 80 years, diminishes habitat for grazing animals, and increases risk for wildland fires (Cal-IPC 2020). Fire stimulates the seedbank to germinate and grow. French broom is a troublesome weed that is widely distributed in the lower elevations on the western side of the Plumas NF, such as the project area and on surrounding private lands.
- All mature plants were killed by the fire, leaving behind carpets of new seedlings. These seedlings are particularly vulnerable within their first year or two of life. Due to the nature of this invasive plant's seed bank to be stimulated by fire, this post-fire scenario creates a prime opportunity to control and ideally eradicate this infestation.

- Management of French broom as part of project implementation is summarized in Table 3. More information about prevention and protective measures is presented in Appendix A.

Table 3. Feather Falls Salvage Project invasive species treatments.

Species name	Management Goal	Planned Treatments
French & Scotch broom	Eradicate	1) Burn and/or mow all plants while small. 2) Repeat every year or two.

Non-native invasive plants (NNIP) summary:

- *Concerns about NNIP in the project area are being addressed as part of project design with an integrated pest management program that meets the purpose and need for the project (see Appendix A).*

REFERENCES

Cal-IPC. 2021. California Invasive Plant Council Cal-IPC. Invasive Plants > Invasive Plant Management > plant profiles > Plant Profiles. Web search page at www.cal-ipc.org/ip/management/plant_profiles/index.php. Last accessed 5/14/2021.

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USDA Forest Service. 2013. 2013 Sensitive Plant List. Pacific Southwest Region, Region 5. Letter from Regional Forester Randy Moore. File Code: 2670. Dated July 3, 2013.

USDA Forest Service. 2014. Plumas National Forest Interim Management Prescriptions for Threatened, Endangered, Sensitive and Special Interest [Watch List] Plants. Memo from Earl W. Ford, Forest Supervisor, to District Rangers. Dated October 16, 2014.

APPENDIX A
BOTANY Management Requirements for the Feather Falls Salvage Project.

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
Rare Plants - Conservation	Botany Controlled Areas (CAs) have been established for the protection of rare plants. • Controlled Areas for Butte County fritillary: No ground disturbance allowed within these Controlled Areas. • In certain situations the project implantation team may consult with the botanist regarding additional small impacts within Controlled Areas.	Botanist, Project Implementation Teams, Contract Administrators
Rare Plants - Conservation	Botany Controlled Areas will be shown on the project implementation maps, and be flagged on the ground by red-and-black-stripe and blue-and-black-stripe flagging always tied together (or by some other demarcation agreed to by the botanist and recreation team). • Contact the District Botanist immediately prior to project implementation to ensure that flagging is in place and refreshed as necessary.	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	Ensure that all plant material and fill material used for erosion control and/or road maintenance is free of NNIP, including straw, mulch, gravel, and rock (*certified weed-free*).	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	Clean all off-road equipment entering the project area if it may be coming from areas infested with nonnative invasive plants (NNIP).	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	To the greatest extent feasible keep all equipment, vehicles, and supplies out of areas of known NNIP infestations, including any NNIP infestations along access routes and new infestations that may be discovered during project implementation. NNIP infestations may sometimes be flagged with bright orange “noxious weed” flagging. • Any equipment, vehicles, and supplies that do come in contact with NNIP infestations (plants or the ground close to them) during project implementation should be thoroughly cleaned of dirt, mud, and plant debris before entering any un-infested project area. • Hand cutting of broom plants and placement of burn piles on top of NNIP infestations is encouraged. • New infestations should be mapped and reported to the District Botanist.	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	Members of the project implementation teams (layout crew, contract administrator, etc.) should watch for and be able to recognize NNIP. • New infestations should be mapped and reported to the District Botanist, and flagged and avoided. • As time allows, pull some or all of NNIP encountered during project activities (avoiding archaeology	Botanist, Project Implementation Teams, Contract Administrators

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
	controlled areas).	
Non-native Invasive Plants (NNIP) - Prevention	Monitor areas of project related ground disturbance (e.g. skid trails, temp roads, landings, trails, etc.) for NNIP for up to 10 years following project implementation. • As funding becomes available, new and old infestations of NNIP should be pulled or otherwise treated. • New infestations should be mapped and reported to the District Botanist.	Botanist and Implementation Team